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ABSTRACT

The 8th Grade Test (1984) of the Illinois Inventory of Educational Progress includes 22 reading items, 39 geometry items, 41 science items, a 27-item student questionnaire regarding science opinions, and 46 mathematics items. The test booklet only is included here. (PN)

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THE ILLINOIS INVENTORY OF EDUCATIONAL PROGRESS

1984 **GRADE 8**

ED240161

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
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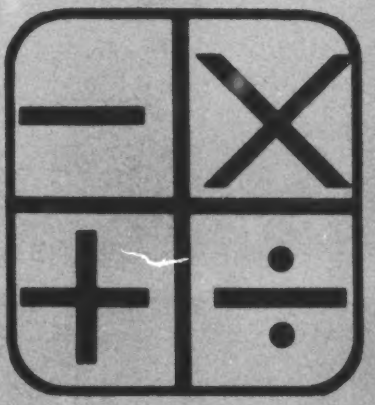

8th GRADE TEST

ILLINOIS INVENTORY OF EDUCATIONAL PROGRESS

DIRECTIONS FOR FILLING OUT THE ANSWER SHEET

*USE A #2 PENCIL TO MARK YOUR ANSWERS.

*MARK ALL OF YOUR ANSWERS ON THE ANSWER SHEET.

*DO NOT WRITE IN THE TEST BOOKLET.

*MATCH THE QUESTION NUMBER TO THE NUMBER ON THE ANSWER SHEET.

*MAKE YOUR MARKS WITHIN THE BUBBLE FOR THE ANSWER YOU SELECT.

*MAKE YOUR MARKS FIRMLY; FILL THE BUBBLE COMPLETELY.

*THERE ARE MORE PLACES FOR ANSWERS THAN THERE ARE QUESTIONS IN THE BOOKLET. BE SURE TO MARK YOUR ANSWER SHEET IN THE PROPER LOCATION.

*IF YOU WISH TO CHANGE AN ANSWER, COMPLETELY ERASE THE MARK YOU WISH TO CHANGE.

*FOLLOW THE DIRECTIONS ON THE SEPARATE SHEET OF INSTRUCTIONS TO FILL IN THE NAME AND STUDENT CODE ON THE ANSWER SHEET.

A number of items in this test are used with permission of the Educational Testing Service, Princeton, New Jersey.

PART 1 SECTION 1

READING TEST

DIRECTIONS: This section contains reading items. For each item, read the question and the answer choices. Then, darken the bubble of your choice on the answer sheet. There are 22 reading items. You will have 30 minutes. READY, BEGIN.

THE TRIUMPH OF THE EGG

The shell of a hen's egg is surprisingly strong. The shape adds to the strength and also keeps the egg from rolling a significant distance if it is pushed. The egg will roll in a semicircle, and it, therefore, will not roll far.

An egg shell is made up of calcium carbonate. The thickness of the shell varies from egg to egg and also within one egg itself. The hen's diet can influence the thickness of the shell. Poultry farmers frequently add oyster shells to the hen's diet as a means of building up the egg shell.

Although the pores are not always easy to see, an egg shell is unusually porous. Water will pass through the shell. Porosity enables carbon dioxide to leave the egg and also permits oxygen to enter the egg while the chick is developing. Water also evaporates through the pores. Water is placed in an incubator to increase humidity.

The color of an egg has no relationship to the nutrient value of its contents. The color-determining factors are inherited. There are two membranes just inside the shell. There are the outer-shell membrane and the inner-shell membrane. The larger the size of the air space, the older is the egg and the longer evaporation has ensued. The air space provides a cushioning effect for the developing chick. The chalaza balances the yolk within the center of the egg.

The most important part of an egg is the germ or nucleus. This is the part that develops into a new animal. The other elements of an egg provide food and protection for the developing offspring.

CONTINUE TO THE NEXT PAGE.

1. The shell of an egg is composed of

   A) calcium carbonate.
   B) carbon dioxide.
   C) oxygen and hydrogen.
   D) numerous elements.

2. The age of an egg may be determined by examining

   A) its color.
   B) the size of the air space within it.
   C) the yolk membrane of an egg.
   D) the chalaza.

3. The shape of an egg

   A) allows continous rolling.
   B) makes storage simple.
   C) makes incubation easier.
   D) prevents it from rolling too far.

4. According to the article, the most important part of the egg is its

   A) shell.
   B) nucleus.
   C) chalaza.
   D) yolk.

5. Poultry farmers add oyster shells to the diet of chickens in order to

   A) produce a stronger and larger baby chick.
   B) increase the amount of calcium consumed by the hens.
   C) shorten the incubation period for the unborn chickens.
   D) aid the digestive processes of the adult chickens.

6. Maintaining a certain level of humidity around incubating eggs is essential because

   A) water helps to keep the temperature around the eggs constant.
   B) water which evaporates from within the eggs must be replaced.
   C) the moisture offsets the intense heat of the incubator.
   D) the presence of water helps shorten the incubation period.

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SONIC FLIGHT

Perhaps you have heard the thunderous roar of a supersonic aircraft as it breaks the sound barrier. This shattering noise is known as sonic boom. A sonic boom is a wave of high-pressure air traveling at the same speed as the aircraft. When the high-pressure air strikes your ears, you hear the sonic boom.

The shock waves giving rise to a sonic boom usually dissipate before reaching the ground when the plane is flying at a high altitude. A high-altitude wave cannot be heard. There is no sonic boom. Military aircraft usually fly at altitudes high enough to prevent a sonic boom from reaching the ground.

Sonic booms are one of the problems of supersonic flight. The vibrating shock waves can break windows and cause other damage to property on the ground. In planning supersonic flight for commercial travel, engineers must solve this problem.

The friction between the air and skin surfaces of the fast-moving aircraft produces heat. This heat is called aerodynamic heat. The action of the aircraft ramming into the wall of air also produces heat. The ramming action causes the air to become exceedingly hot. This heat flows over the oncoming plane.

The heating effect is serious. The faster the aircraft flies, the hotter it becomes. At Mach 1 the temperature of the skin of an aircraft flying at 35,000 feet might be around 50°F. At Mach 2, the temperature rises to about 200°F. A temperature of 600° might be recorded at Mach 3. At Mach 4, the same aircraft at the same altitude would have a skin temperature of 1,000°F.

Much research has gone into finding metals and alloys that can withstand high temperatures. Obviously, the melting point of the metals used in aircraft construction must be unusually high. Otherwise, supersonic flight would be impossible. Among the metals used in high-temperature alloys are tantalum, molybdenum, and tungsten.

7. "Breaking the sound barrier" means

   A) breaking through the lower levels of the earth's atmosphere.
   B) penetrating with force the ocean of air nearest the earth's surface.
   C) creating the inevitable sonic boom.
   D) traveling faster than the speed of sound.

8. This article about sonic flight deals with two major issues. They are

   A) sonic boom and friction.
   B) high altitude flight and metals.
   C) property and aircraft damage.
   D) commercial travel and experimental research.

CONTINUE TO THE NEXT PAGE.

9. Aerodynamic heat is defined in the article as

   A) the action of the aircraft ramming into the wall of air.
   B) a wave of high-pressure air traveling at the same speed as the aircraft.
   C) friction between the air and the outside covering of fast-moving aircraft.
   D) the heat produced by high-altitude flight.

10. Until engineers solve the problem of sonic boom, the best solution to the problem appears to be to

   A) abandon all supersonic flights over populated areas.
   B) restrict supersonic flight to military.
   C) have commercial planes avoid metropolitan areas.
   D) fly supersonic aircraft at very high altitudes.

11. A metal with a "high melting point" would be a metal that

   A) melts at a relatively low temperature.
   B) melts at a relatively high temperature.
   C) would be unsuitable for use in supersonic aircraft.
   D) could be blended with other metals to make alloys.

12. From this article, it is clear that in the construction of supersonic aircraft

   A) the appropriate metals exist naturally on earth in usable form.
   B) the shape of the aircraft has little to do with heat buildup.
   C) the military is in the best position to guide the experiments.
   D) much research is needed to develop man-made materials designed to withstand intense heat.

13. Suppose you were the mayor of a large city with an airport. Suppose that a commercial airline wished to begin regular supersonic flights into your city. Which of the following would be your strongest, most valid objection to such flights?

   A) There are possible personal injuries and property damage for homeowners.
   B) There is a need for more research and experimentation on such aircraft.
   C) Not enough is known about the long-term effects of supersonic flight.
   D) The city inhabitants would reject this means of transportation.

CONTINUE TO THE NEXT PAGE.

"GREAT EXPECTATIONS"

My father's family name being Pirrip, and my Christian name Philip, my infant tongue could make of both names nothing more explicit than Pip. So I called myself Pip and came to be called Pip.

I gave Pirrip as my father's family name, on the authority of his tombstone and my sister -- Mrs. Joe Gargery, who married the blacksmith. I never saw my father or my mother and never saw a picture of either of them.

Ours was the marsh country, down by the river, within twenty miles of the sea. My first vivid impression of things seems to me to have been gained on a memorable raw afternoon toward evening. At such a time I found out for certain that this bleak place was the churchyard; and that Philip Pirrip, late of this parish, and Georgiana, wife of the above, were dead and buried. I knew that the dark flat wilderness beyond was the marshes; and that the low leaden line beyond was the river; and that the distant savage lair from which the wind was rushing was the sea; and that the small bundle of shivers growing afraid of it all and beginning to cry was Pip.

"Hold your noise!" cried a terrible voice, as a man started up from among the graves. "Keep still, you little devil, or I'll cut your throat."

A fearful man, all in coarse gray, with a great iron on his leg. A man with no hat, and with broken shoes, and with an old rag tied round his head. A man who had been soaked in water, and smothered in mud, and lamed by stones, and cut by flints, and stung by nettles, and torn by briars; who limped and shivered, and glared and growled; and whose teeth chattered in his head as he seized me by the chin.

14. In which of the following sentences is "impression" used in the same way as it is used in line 16?

A) The dropped brick left a very deep impression in the packed snow.
B) My encounter with danger on that voyage left a deep, lasting impression on me.
C) He gives the impression that he is busy, when in fact, he isn't.
D) The entertainer gives a fine impression of the new President.

15. Which of the following sentences uses the same meaning of "savage" as in line 28?

A) We stood with wonder, looking at the savage mountain landscape.
B) Was he a savage or a civilized man?
C) I certainly wouldn't risk a meeting with that savage watchdog.
D) Some Native American tribes had savage war customs.

16. All of the following are true about the speaker in the passage EXCEPT

A) he is an orphan.
B) his father had the same name that he does.
C) he does not cry until the man jumps up in front of him.
D) his mother's name is Georgiana.

CONTINUE TO THE NEXT PAGE.

17. The speaker is telling the story

A) as it happens.
B) long after the events took place.
C) to a single listener.
D) to himself.

18. The boy came to be called Pip

A) because he never learned to pronounce Philip Pirrip.
B) because his elder sister decided to call him Pip.
C) because Pip was what he called himself as an infant.
D) because Pip was a traditional nickname.

19. The man Pip encounters is all of the following EXCEPT

A) muddied, gruff, and disheveled.
B) hatless, soaking, and limping.
C) lacerated, rough, and shackled.
D) silent, angry, and limping.

20. The story is told

A) by an omniscient narrator.
B) from the third-person point of view.
C) by a first-person narrator.
D) by a very young boy.

21. The speaker first begins to cry when

A) the man seizes him from behind.
B) he is frightened by his surroundings and the loneliness of his life.
C) he visits his parents' tombstones.
D) he begins to feel the cold.

22. Which paragraph contributes LEAST to the mood of the passage?

A) the first
B) the second
C) the third
D) the last

STOP! DO NOT CONTINUE UNTIL YOU ARE TOLD TO DO SO.

PART 1 SECTION 2

GEOMETRY TEST

DIRECTIONS: This section contains geometry items. For each item, read the question and the answer choices. Then, darken the bubble of your choice on the answer sheet. There are 39 geometry items. You will have 30 minutes. READY, BEGIN.

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23. In the figure below, ABDE is a rectangle. Which segment is parallel to $\overline{DE}$?

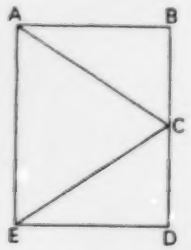
A. $\overline{AC}$

B. $\overline{AE}$

C. $\overline{CE}$

D. $\overline{AB}$

E. $\overline{BD}$



24. Find the AREA of the following rectangle?

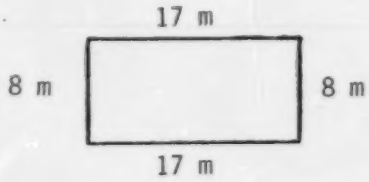
A. 25 m^2

B. 50 m^2

C. 68 m^2

D. 136 m^2

E. 289 m^2



25. In the circle below, with center O, which line segment represents the radius?

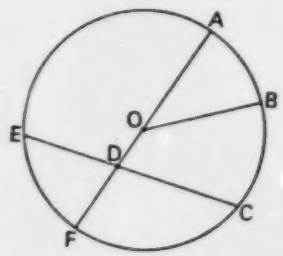
A. $\overline{CD}$

B. $\overline{AF}$

C. $\overline{EC}$

D. $\overline{DE}$

E. $\overline{OB}$



26. The two polygons below are congruent. Which side in figure WXYZ corresponds to side $\overline{FG}$?

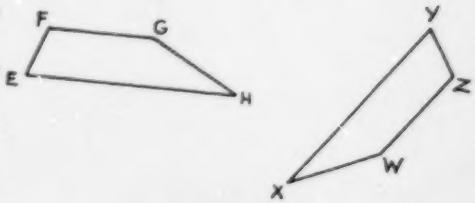
A. $\overline{XY}$

B. $\overline{YZ}$

C. $\overline{ZW}$

D. $\overline{WX}$

E. $\overline{XY}$



27. In the coordinate plane below, point A is named by:

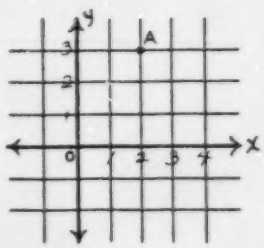
A. (2,3)

B. (3,2)

C. (3,3)

D. (3,4)

E. (4,3)



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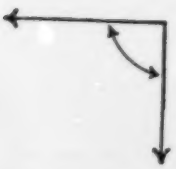
28. Which angle below is congruent to the angle in figure 1?

Figure 1

A. 

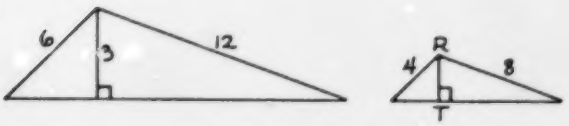
B.

C.

D.

E.

29. If the two triangles below are similar, how long is $\overline{RT}$?



A. 1

B. 2

C. 3

D. 4

E. 5

30. Triangle PQR is an isosceles triangle with $\overline{PQ} \cong \overline{PR}$. The measure of angle x is

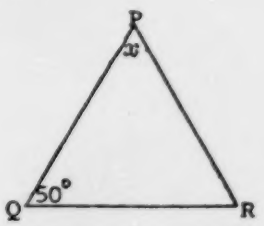
A. 40°.

B. 50°.

C. 65°.

D. 80°.

E. 100°.



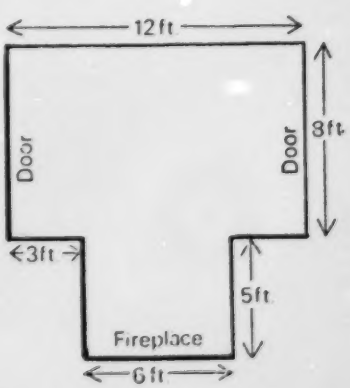
31. What is the perimeter of the room in the figure below?

A. 34 feet

B. 50 feet

C. 100 feet

D. 156 feet



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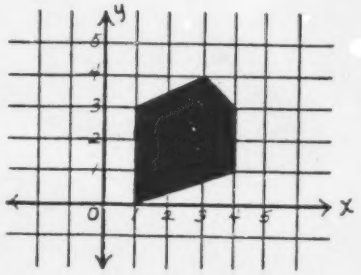
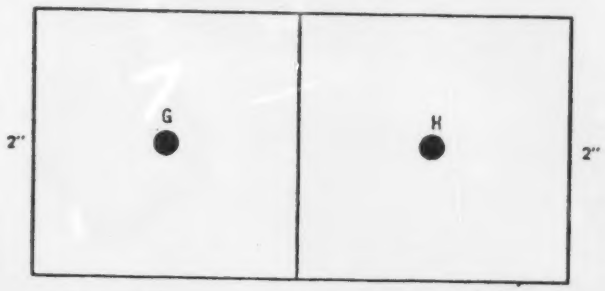
32. Which point is outside the shaded figure below?

A. (4,3)
B. (4,1)
C. (3,2)
D. (2,4)
E. (2,1)

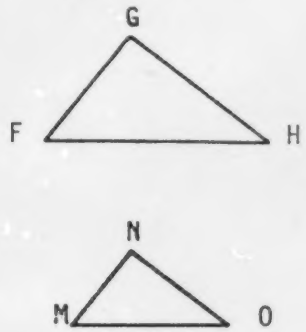


33. Two squares are shown below. G and H are the centers of the squares. What is the distance in inches from G to H?



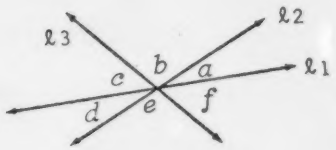
A. 12
B. 4
C. 3
D. 2
E. 1

34. Given that the figures below are similar, the measure of angle F is the same as the measure of angle



A. ∠ G
B. ∠ H
C. ∠ M
D. ∠ N
E. ∠ O

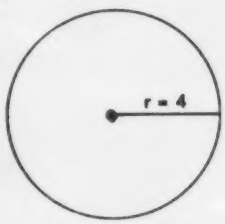
35. In the figure below, two adjacent angles would be



A. a and d.
B. d and f.
C. c and f.
D. a and b.

36. What is the area of the circle below with a radius of 4? (let $\pi = 3.14$)

A. 6.23
B. 12.56
C. 25.12
D. 50.24
E. 57.25



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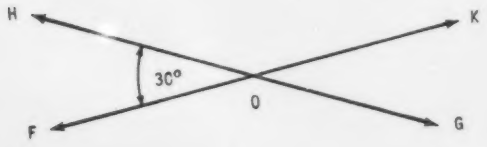
37. In the figure below what is the size of the angle FOG?



A. 30°

B. 70°

C. 150°

D. 180°

38. What is the area of triangle ABC?

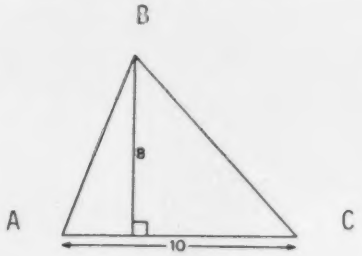
A. 9

B. 18

C. 20

D. 40

E. 60



39. In the figure below, angle ? is an obtuse angle.

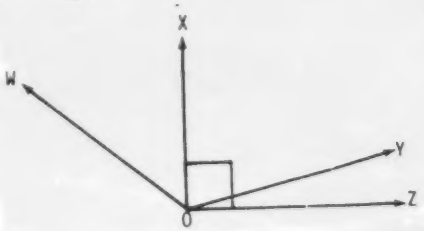
A. ∠ XOY

B. ∠ XOZ

C. ∠ YOZ

D ∠ WOZ

E. ∠ XOW



40. Estimate the size of the angle below. It appears to be between

A. 0° and 45°

B. 45° and 60°

C. 60° and 90°

D. 90° and 135°

E. 135° and 180°

41. What is the volume of the rectangular solid shown below? (Each cube is 1 cm^3.)

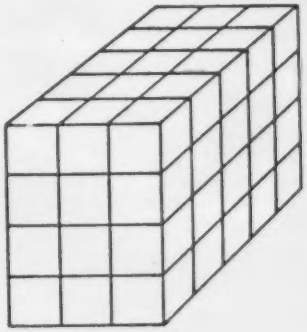
A. 12 cm^3

B. 15 cm^3

C. 47 cm^3

D. 60 cm^3

E. 72 cm^3



42. In the circle below, with center O, which segment is a diameter?

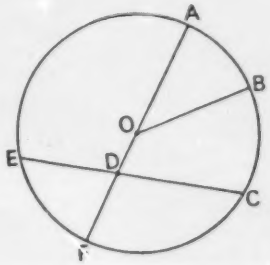
A. $\overline{OA}$

B. $\overline{OB}$

C. $\overline{CE}$

D. $\overline{AF}$

E. $\overline{EC}$



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43. Using Figure 2, the measure of angle KFJ =

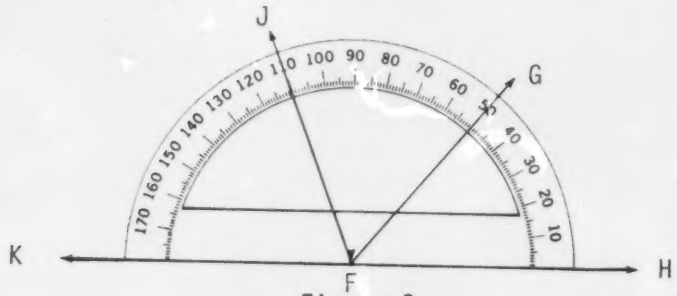


Figure 2

A. 50^{o}.

B. 60^{o}.

C. 70^{o}.

D. 110^{o}.

E. 130^{o}.

44. What is the volume of a box with a width of 9 cm, a length of 12 cm, and a height of 25 cm?

A. 46 cm^3

B. 270 cm^3

C. 460 cm^3

D. 525 cm^3

E. 2700 cm^3

45. A box has a volume of 100 cm^3. Another box is twice as long, twice as wide, and twice as high. What is the volume of the second box?

A. 200 cm^3

B. 450 cm^3

C. 500 cm^3

D. 600 cm^3

E. 800 cm^3

46. Which one of the following statements is TRUE?

A. All rectangles are squares.

B. All squares are rectangles.

C. No squares are rectangles.

D. No rectangles are squares.

E. Some squares are not rectangles.

47. What is the area of the shaded portion of the figure below?

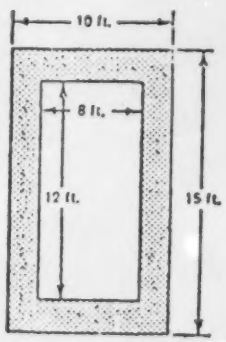
A. 6 sq. ft.

B. 48 sq. ft.

C. 54 sq. ft.

D. 96 sq. ft.

E. 150 sq. ft.



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48. The radius of the inside of the pipe below is 3 inches. The wall of the pipe is 1 inch thick. What is the outside diameter of the pipe?

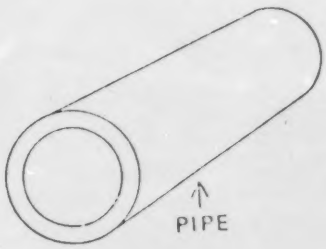
A. 4 inches

B. 5 inches

C. 7 inches

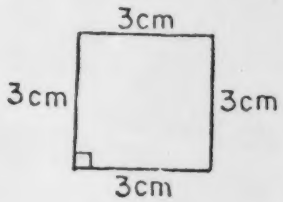
D. 8 inches

E. 9 inches

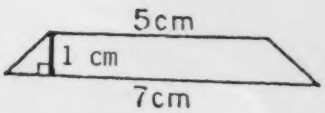


49. Which polygon below has an area of 12 square centimeters?

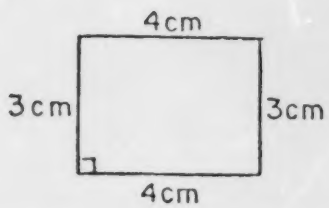
A.



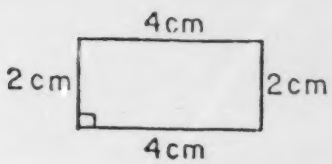
B.



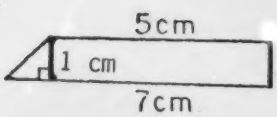
C.



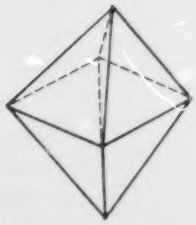
D.



E.



50. Which statement about the surface below is NOT TRUE?



A. It is a closed space figure.

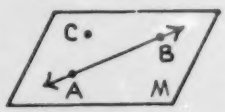
B. It is a pyramid.

C. It has 6 vertices.

D. It has 8 faces.

E. It has 12 edges.

51. Which statement is true for the figure below?



A. Line $\overleftrightarrow{AB}$ is contained in plane M.

B. Segment $\overline{AB}$ is parallel to point C.

C. Point C is contained in line $\overleftrightarrow{AB}$

D. Plane M is contained in line $\overleftrightarrow{AB}$

E. None of the above.

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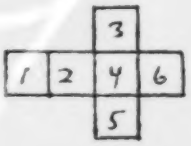
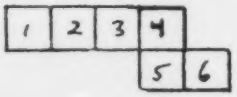
Directions: Use the patterns in Figure 3 below to answer question 52

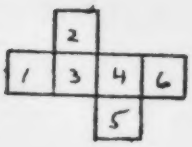
A.



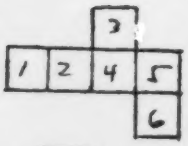
B.



C.



D.



E.

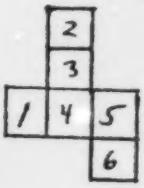


Figure 3

52. If the patterns in Figure 3 above were each folded to try to make a box, which one of the statements below is TRUE?

A. In (A), square 1 and 6 would overlap.

B. In (B), square 1 and 6 would overlap.

C. In (C), square 1 and 6 would overlap.

D. In (D), square 1 and 6 would overlap.

E. In (E), square 1 and 6 would overlap.

53. Which of the following is NOT ALWAYS TRUE for a rhombus?

A. All of the sides are congruent.

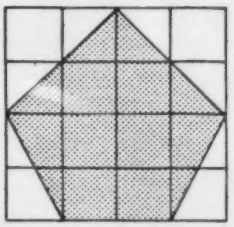
B. All of the angles are congruent.

C. The diagonals bisect each other.

D. The diagonals are perpendicular to each other.

E. It has at least two lines of symmetry.

54. ESTIMATE the area of the shaded figure in square units?



A. 8 square units

B. 10 square units

C. 12 square units

D. 14 square units

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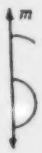
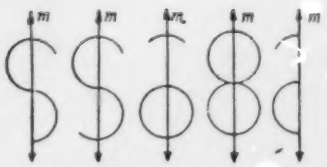
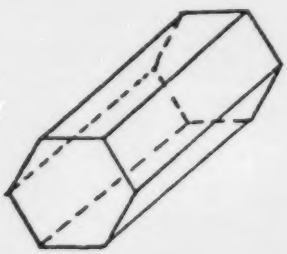
55. The figure below shows the part of a figure on one side of a line of symmetry, m. Which answer choice shows the complete figure?



A. B. C. D. E.



56. Which answer is NOT TRUE about the surface pictured below?



A. At least one face is a pentagon.

B. At least one face is a hexagon.

C. It has more than 10 edges.

D. It has 6 congruent rectangular faces.

E. The base is a simple closed curve.

57. In Figure 4 below, if you rotate triangle PQR around the dotted line, which answer shows the three-dimensional surface traced out by the moving sides?

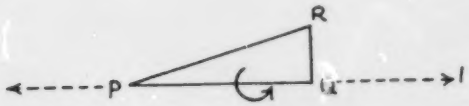
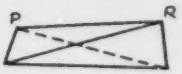
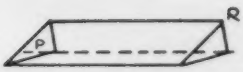


Figure 4

A.

B. 

C.

D. 

E.

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58. Nine faces are shown below.

Which surface(s) shown BELOW can be built using only some or all of these 9 faces?

Figure I

Figure II

Figure III

A. Only Figure I

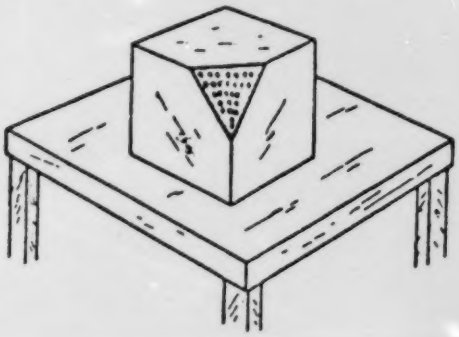
B. Only Figure II

C. Only Figure III

D. Only Figures I and III

E. All three figures

59. The figure below shows a block with one corner cut off and shaded. Which of the figures in the answer choices shows how this block would look when viewed from directly above it.



A.

B.

C.

D.

E.

CONTINUE TO THE NEXT PAGE

60. ABCD is a square. Each side of the square is 60 feet. How many feet long is segment $\overline{AC}$?

A. 30

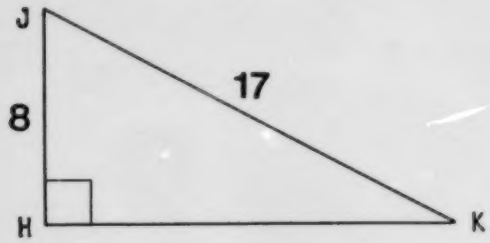
B. $60\sqrt{2}$

C. $60\sqrt{3}$

D. 90

E. 120

61. In right triangle HJK the length of the segment $\overline{HK}$ is



A. 9.

B. 12.

C. 13.

D. 15.

E. 25.

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PART 1 SECTION 3

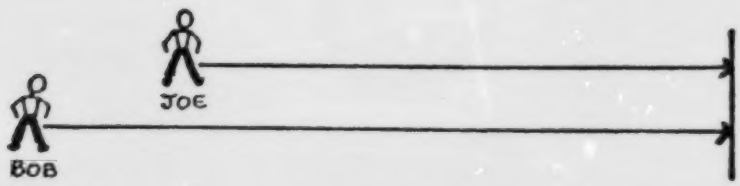
SCIENCE

This section contains items about science. For each item, read the question and the answer choices. Then, darken the bubble of your choice on the answer sheet. There are 41 science items. You will have 25 minutes. READY, BEGIN.

---

62. If you want to find out how much height a girl gained in one year, which of the following MUST you know about her?

a. Her age
b. The type of food she eats
c. The height of her mother and father
d. Her height at the beginning of the year



63. Two boys raced. Joe is younger than Bob, so he started closer to the finish line. Both started to run when the signal was given. Both got to the finish line at the same time. Which is true?

a. Joe ran further than Bob.
b. Joe ran faster than Bob.
c. Bob ran faster than Joe.
d. Bob ran for a longer time.

64. In order to determine atmospheric air pressure, you should use

a. a thermometer.
b. a barometer.
c. an anemometer.
d. a hydrometer.

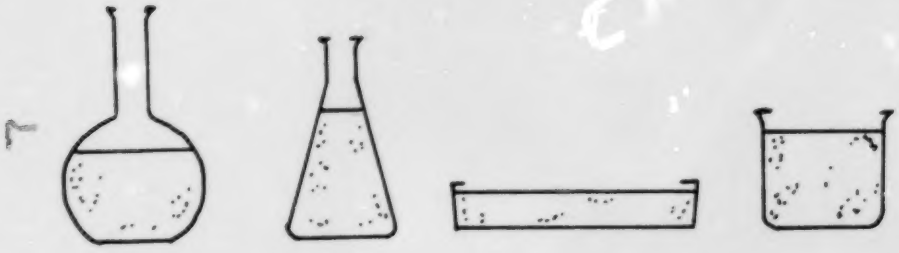
CONTINUE TO THE NEXT PAGE

65. Why is it cooler to wear light-colored clothes in the summer?

a. Light-colored clothes let more air in.
b. Light-colored clothes prevent sweating.
c. Light-colored clothes are not as heavy as dark-colored clothes.
d. Light-colored clothes reflect more sunlight than dark-colored clothes.

66. The same amount of water is poured into each of the containers shown below, and they are left uncovered in a warm room. After a day, which container will have the LEAST amount of water left in it.

a. b. c. d.



67. The most prevalent agent of erosion on the earth's surface is

a. wind.
b. moving glaciers.
c. running water.
d. falling rocks.

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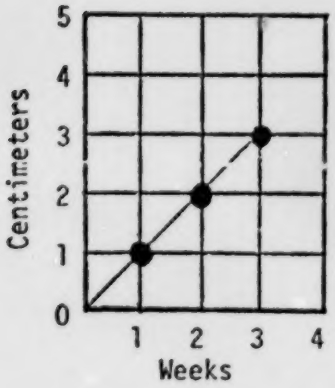
68. A plant grows this way:

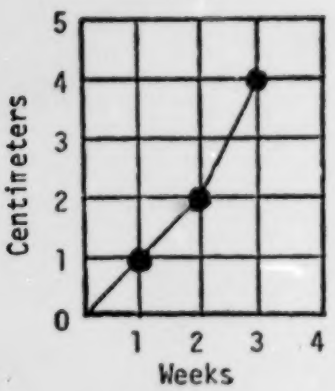
Week	Height (centimeters)
1	1
2	2
3	4

Which graph shows this growth pattern?

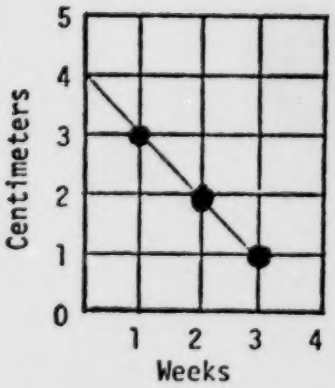
a.



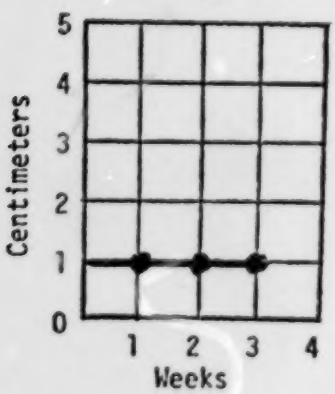
b.



c.



d.



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69. In the United States, air masses which cause weather generally move from the

a. east to west.
b. west to east.
c. north to south.
d. south to north.

70. What happens when you pour hot water into a cold, empty cup?

a. The water will get hotter.
b. The cup will get colder.
c. The water will get colder.
d. The cup will stay the same temperature.

71. All of the following can be called matter EXCEPT

a. gold.
b. ideas.
c. shoes.
d. water.

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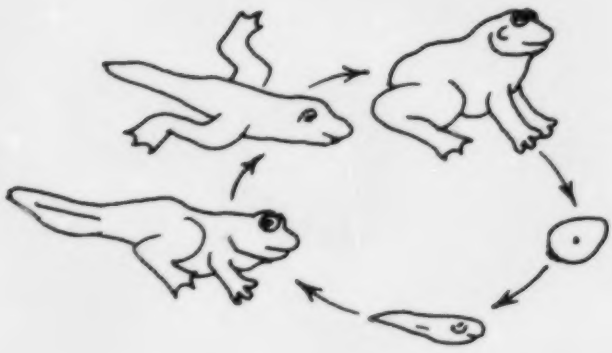
72. Look carefully at the following picture stories of the life of a frog. Which picture story is CORRECT?

a.

b.

c.



73. How much sugar water would you get if you mixed 100 grams of sugar with 100 grams of water?

a. 100 grams
b. About 150 grams
c. 200 grams
d. A little more than 200 grams

74. Sally and Jill have a foot race from A to B on different paths. Sally runs from A to C and then to B, and Jill runs straight from A to B. Both leave A at the same time and arrive at B together, making a tie.

This means that

a. Jill took longer to get to B than Sally.
b. Sally is a faster runner than Jill.
c. both girls ran at the same speed.
d. their speeds made no difference.

75. Four bricks are placed in full sunlight at 10 a.m. The bricks are colored white, yellow, blue and black. Which brick will have stored the most heat energy by 2 p.m.?

a. White brick
b. Yellow brick
c. Blue brick
d. Black brick

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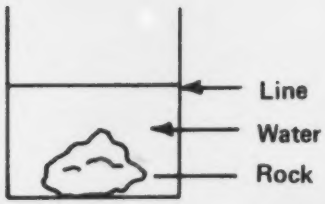
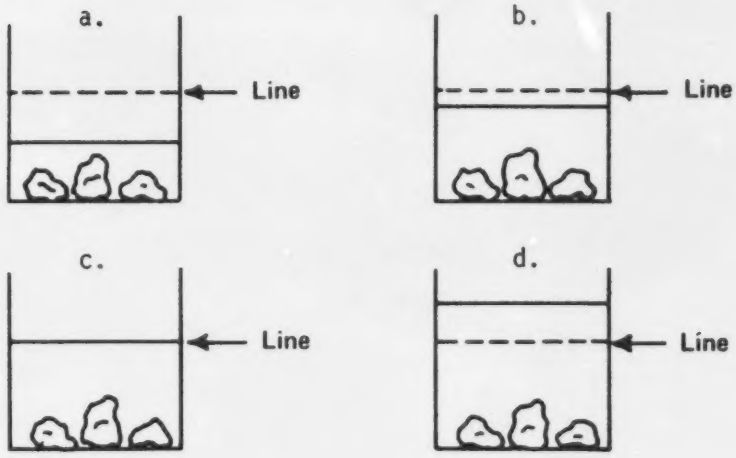


76. When a rock is put into a pail of water, the water comes up to the line as the picture above shows. If the rock is broken into three pieces, which of the pictures below shows how high the water is?



77. Green plants make food by the process called

a. digestion.
b. evaporation.
c. photosynthesis.
d. osmosis.

CONTINUE TO THE NEXT PAGE

Look at the drawing of a metal pitcher that has been sitting on a table for 20 minutes. Using ONLY the evidence in the drawing, answer the two questions.

78. The pitcher is full.

a. Probably true
b. Probably false
c. Cannot tell from the drawing.

79. There is something cold inside the pitcher.

a. Probably true
b. Probably false
c. Cannot tell from the drawing.

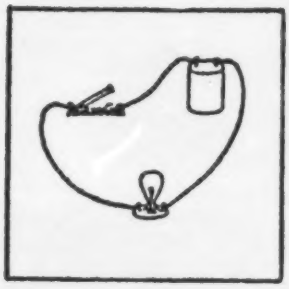
80. All of the following are needed for a fish to live in an aquarium EXCEPT

a. food.
b. sand.
c. water.
d. oxygen.

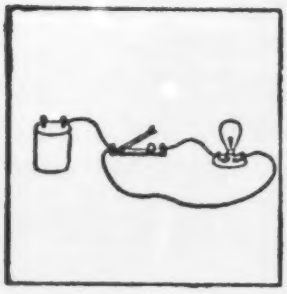
81. Look at the four pictures below. Each shows a battery, a bulb, and a switch. Which bulb will light when the switch is closed?

a.

b.



c.



d.

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82. The fish, dog, and bird are alike in many ways. One way is that they all have

a. legs.
b. hair.
c. lungs.
d. backbones.

83. Which one of the following is MOST likely to make a rock break open?

a. Dew evaporating on the rock
b. Tree leaves decaying on the rock
c. Snow melting in a crack in the rock
d. Water freezing in a crack in the rock

84. A town that was once located on the mouth of a river is now several kilometers inland from the sea. This change probably occurred as a result of

a. a drop in the level of the ocean.
b. a dam being built on the upstream side of the town.
c. a buildup of soil deposited by the river.
d. sand being deposited by dust storms.

85. If you had to find who was the <u>fastest</u> <u>runner</u> in your school, which way would be best?

a. Boys run against boys and girls run against girls.
b. You only run people of the same age.
c. Each person runs the same distance and is timed.
d. Younger runners should get a 15-step head start.

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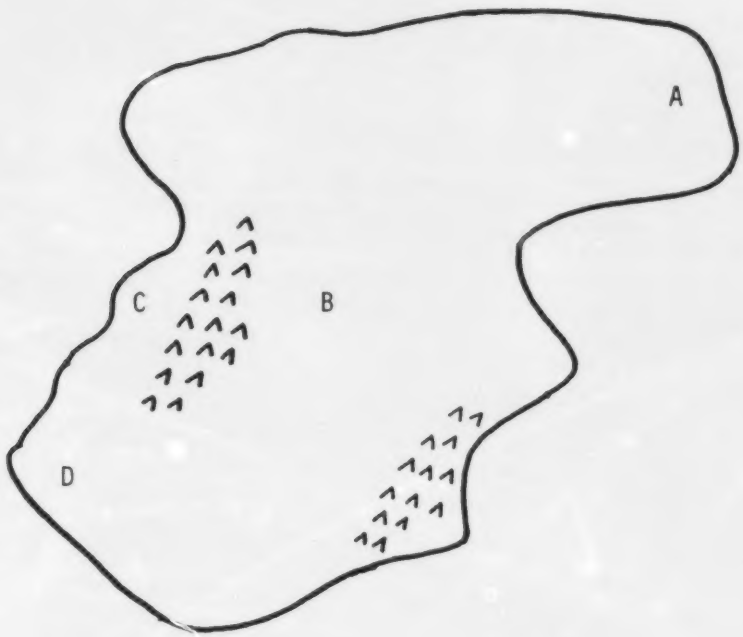


86. On the island drawn above, rain storms normally travel from the left to right across the island. The greatest rainfall would occur at point

a. A.
b. B.
c. C.
d. D.

87. Many times when road builders cut into hills, they notice various layers of soil and rocks. These layers are probably caused by

a. the machinery picking up the lighter materials first as it is easier.
b. different amounts of rainfall each year.
c. deposits of various layers over many years during periods of time in the earth's history.
d. heavier materials settling faster.
e. the spinning of the earth causing the lighter materials to come to the surface.

CONTINUE TO THE NEXT PAGE

88. To determine the average length of a fish called a bluegill in a pond, it would be most important to

a. know the exact size of the pond.
b. know which animals prey on bluegills.
c. use a large sample of bluegills.
d. have several people measuring the length of bluegills.

89. Most cells contain all of the following EXCEPT

a. nucleus.
b. tissue.
c. membrane.
d. cytoplasm.

90. Which of the following is NOT true about a hypothesis?

a. It is testable.
b. It is an intelligent guess.
c. It is one step in the scientific process.
d. It is a proven statement.

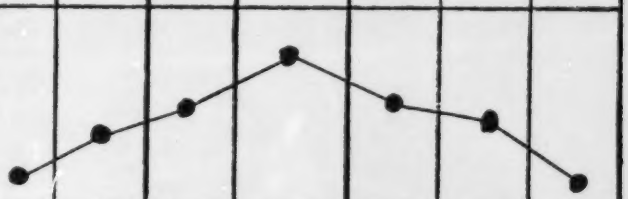
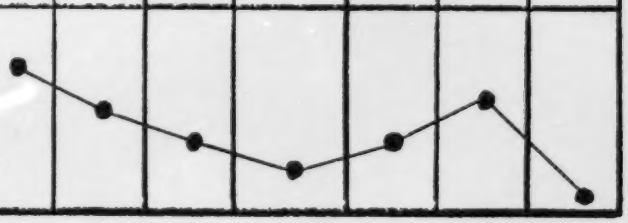
91. What is the main way sweating helps your body?

a. It helps cool your body.
b. It keeps your skin moist.
c. It keeps you from catching cold.
d. It gets rid of the salt in your body.

CONTINUE TO THE NEXT PAGE

Look at the information in the diagram below and answer the two questions.

WEATHER DATA FOR SUN CITY

Day		Mon	Tues	Wed	Thurs	Fri	Sat	Sun
Time		Noon	Noon	Noon	Noon	Noon	Noon	Noon
Cloudiness								
Temperature °F	80° 60° 40°							
Atmospheric Pressure milli bars	1040 1020 1000							

92. Which one of the following conditions might have predicted rain on Sunday?

a. The pressure was dropping, and the temperature was rising.
b. The pressure was rising, and the temperature was dropping.
c. The pressure was dropping, and the temperature was dropping.
d. The pressure was rising, and the temperature was rising.

93. Look at the diagram for the days Munday through Thursday. Choose the best description of the relationship between temperature and pressure for those days.

a. As the temperature rose, the pressure remained the same.
b. As the pressure rose, the temperature remained the same.
c. As the pressure rose, the temperature dropped.
d. As the temperature rose, the pressure dropped.

CONTINUE TO THE NEXT PAGE

94. Some grape leaves were accidentally sprayed with paint. Those leaves did not get moldy. Other unsprayed grape leaves did get moldy. This discovery led to a way to protect fruit trees and vines from many diseases caused by mold.

This shows that

a. unexpected results are sometimes useful.
b. science and technology work together.
c. scientific laws are the result of careful experimentation.
d. measurement is important in science.

95. It is known that certain gases condense around crystals. What is this knowledge used for?

a. Detecting radio signals
b. Seeding clouds to make rain
c. Making certain crops mature faster
d. Measuring ocean depths

96. Some people think that the solution to coal, gas and oil shortages is to switch over to electricity. In other words, if we run out of gas and oil, we can just switch over to electric cars. What is wrong with this idea?

a. Most electricity is produced from coal, gas and oil.
b. If we switch over to electricity, many people will lose their jobs.
c. It has been proven that it is impossible to build electric cars in great quantities.
d. Electricity is far too expensive.

 CONTINUE TO THE NEXT PAGE

97. If someone tells you that her sprained ankle hurts, she is communicating to you

a. an inference.
b. a hypothesis.
c. an observation.
d. a measurement.

98. If a scientist needs to conduct an experiment, which of the following would indicate the proper sequence of tasks he/she should perform?

a. Experiment, record data, interpret the data.
b. Record data, draw conclusions, write a hypothesis.
c. Design an experiment, interpret the data, conduct the experiment.
d. Interpret data, record the data, draw conclusions.

99. A large factory begins to empty industrial waste into the Illinois River. Later, it is found that there are no young catfish downstream from this factory. However, the number of large catfish downstream is about the same as the number of large catfish upstream.

It is likely that the industrial waste

a. prevents spawning.
b. lowered the temperature of the river.
c. has no effect on catfish growth.
d. has decreased the death rate of the young catfish.

CONTINUE TO THE NEXT PAGE

100. Tom wanted to find out whether plants can grow better in the dark or in the light. He put a pot with 6 radish seeds in a dark room and a pot with 6 bean seeds on the window sill.

radish seeds

bean seeds

He added the same amount of water to both pots. The bean seeds grew better than the radish seeds, so Tom said his plants grew in the light.

One of the things Tom should have done to be able to say this and be correct is:

a. watered both pots more.
b. watered the radish seeds more.
c. put the same kind of seeds in both pots.
d. grown the seeds in water instead of soil.

101. Information that science has produced is

a. proven fact based on experiments.
b. based primarily on spiritual insight.
c. always true and will remain true.
d. subject to change.

102. Over the past 200 years, the greatest threat to the natural environment has been from

a. germs.
b. insects.
c. man.
d. predators.

S T O P

DO NOT CONTINUE UNTIL TOLD TO DO SO.

Part 2; Section 1
Student Questionnaire

DIRECTIONS: This section contains items about you and your opinions. For each item, read the question and the answer choices. Then, darken the bubble of your choice on the answer sheet. There are 27 student questionnaire items. You will have 15 minutes. READY, BEGIN.

103. Are you male or female?

(A) Male
(B) Female

104. How often do you read books about science other than the ones you read for school?

(A) Just about every day
(B) Once or twice a week
(C) Once or twice a month
(D) Once or twice a year
(E) Rarely or never

105. Which group do you belong to?

(A) White American
(B) Black American
(C) American of Cuban, Mexican, Puerto Rican or other Latin American descent
(D) Oriental American
(E) Other

106. About how many hours a day do you watch TV?

(A) More than 4 hours
(B) Between 3 and 4 hours
(C) Between 2 and 3 hours
(D) Between 1 and 2 hours
(E) Less than an hour

107. Out of the 41 items in the science test, how many do you think you answered correctly?

(A) 0-8
(B) 9-16
(C) 17-24
(D) 25-32
(E) 33-41

108. Out of the 41 items in the science test, how low could you score and still be satisfied with the results.

(A) 0-8
(B) 9-16
(C) 17-24
(D) 25-32
(E) 33-41

109. How often do you watch TV documentary programs about nature, medicine, the solar system, or the universe?

A. Just about every day
B. Once or twice a week
C. Once or twice a month
D. Once or twice a year
E. Rarely or never

110. When you perform well on a science assignment at school, it is because

A. you are good at it.
B. you worked very hard.
C. you were lucky.
D. the assignment was easy.

111. When you perform poorly on a science assignment at school, it is because

A. you are not very good at it.
B. you did not work hard enough.
C. you were unlucky.
D. the assignment was hard.

112. How many children are there in your family?

A. Five or more
B. Four
C. Three
D. Two
E. I am an only child.

CONTINUE TO THE NEXT PAGE

113. How often do you talk to your parents about science?

A. Never or hardly at all
B. Once or twice a month
C. Once or twice a week
D. Just about every day

114. Are you studying science in school this year?

A. Yes
B. No

115. How often have you had science in school?

A. Every year
B. Some years but not others
C. Almost never
D. Not at all

116. Does your mother and/or father work in some science-related area such as medicine, chemistry, or research?

A. Yes
B. No

117. How often do you do science projects other than the ones you do for school?

A. Just about every day
B. Once or twice a week
C. Once or twice a month
D. Once or twice a year
E. Rarely or never

118. When was your last science class in school?

A. Recently
B. Last semester
C. Last school year
D. A few years ago

ANSWER EACH OF THE FOLLOWING QUESTIONS ABOUT HOW YOU FEEL OR WHAT YOU THINK. THERE ARE NO RIGHT OR WRONG ANSWERS.

119. Knowledge of science is important to me because it helps me get good grades.

A. Strongly agree
B. Agree
C. Neither agree nor disagree
D. Disagree
E. Strongly disagree

120. Knowledge of science is important to me because it helps me understand the world around me.

A. Strongly agree
B. Agree
C. Neither agree nor disagree
D. Disagree
E. Strongly disagree

121. Knowledge of science is important to me because it impresses my friends.

A. Strongly agree
B. Agree
C. Neither agree nor disagree
D. Disagree
E. Strongly disagree

122. Knowledge of science is important to me because it's fun to learn.

A. Strongly agree
B. Agree
C. Neither agree nor disagree
D. Disagree
E. Strongly disagree

123. Knowledge of science is important to me because it gets approval from my teacher.

A. Strongly agree
B. Agree
C. Neither agree nor disagree
D. Disagree
E. Strongly disagree

124. Knowledge of science will impress my friends.

A. Strongly agree
B. Agree
C. Neither agree nor disagree
D. Disagree
E. Strongly disagree

 CONTINUE TO THE NEXT PAGE

125. Knowledge of science will get me good grades.

A. Strongly agree
B. Agree
C. Neither agree nor disagree
D. Disagree
E. Strongly disagree

126. Knowledge of science will help me understand the world around me.

A. Strongly agree
B. Agree
C. Neither agree nor disagree
D. Disagree
E. Strongly disagree

127. Knowledge of science will be fun to learn.

A. Strongly agree
B. Agree
C. Neither agree nor disagree
D. Disagree
E. Strongly disagree

128. Knowledge of science will get me the approval of my teacher.

A. Strongly agree
B. Agree
C. Neither agree nor disagree
D. Disagree
E. Strongly disagree

129. Knowledge of science will help me get a good job later in life.

A. Strongly agree
B. Agree
C. Neither agree nor disagree
D. Disagree
E. Strongly disagree

CONTINUE TO THE NEXT PAGE

PART 2 SECTION 2

MATHEMATICS TEST

DIRECTIONS: This section contains mathematics items. For each item, read the question and the answer choices. Then, darken the bubble of your choice on the answer sheet. There are 46 mathematics items. You will have 45 minutes. READY, BEGIN.

CONTINUE TO THE NEXT PAGE

130. Solve: $\square + 256 = 381$

A. 115

B. 125

C. 135

D. 537

E. 637

131. Which one of the following is another way of expressing 3×10^2?

A. 30

B. 60

C. 300

D. 3000

132. The number six thousand, four hundred, sixty-five is written as

A. 60,465

B. 6,465

C. 6,000,400,065

D. 6000,400,65

133. Which is the closest to the size of one cm^2?

A. A tennis court

B. The cover of a record album

C. A slice of bread

D. Your thumbnail

134. Which number is the SMALLEST?

A. 2.002

B. 0.202

C. 0.22

D. 0.022

135. A car takes 15 minutes to travel ten kilometers. What is the speed of the car?

A. 30 kilometers per hour

B. 40 kilometers per hour

C. 60 kilometers per hour

D. 90 kilometers per hour

E. 150 kilometers per hour

CONTINUE TO THE NEXT PAGE

136. Solve for n: $\frac{12}{26} = \frac{18}{n}$

A. 39

B. 38

C. 32

D. 13

137. Subtract 4.78 from 17.5

A. 11.72

B. 11.92

C. 12.63

D. 12.72

E. 12.91

138. Multiply: $\begin{array}{r} 0.18 \\ \times\ 0.9 \\ \hline \end{array}$

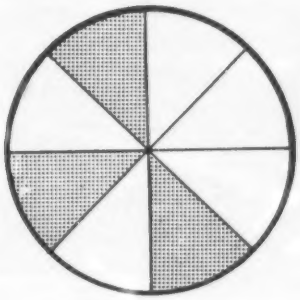
A. 1.72

B. 1.65

C. 0.162

D. 0.92

139. The figure below is divided into equal parts. What fractional part is shaded?



A. $\frac{1}{2}$

B. $\frac{3}{5}$

C. $\frac{3}{8}$

D. $\frac{5}{3}$

CONTINUE TO THE NEXT PAGE

140. Which of these fractions is the LARGEST?

A. $\frac{2}{3}$

B. $\frac{3}{4}$

C. $\frac{4}{5}$

D. $\frac{5}{8}$

141. Subtract: 11.09 - 8.53

A. 2.06

B. 2.56

C. 3.06

D. 3.53

E. 3.56

142. Multiply: $\frac{7}{14} \times \frac{4}{5}$

A. $\frac{11}{19}$

B. $\frac{2}{5}$

C. $\frac{35}{56}$

D. $\frac{28}{19}$

143. A turkey is to be cooked 20 minutes for each pound. If a turkey weighing 12 pounds is to be done by 5:00 p.m., what is the latest time it could be put in to cook?

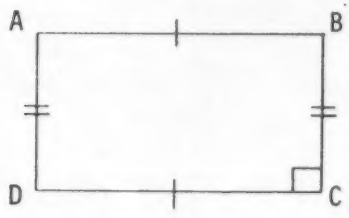
A. 12:00 noon

B. 12:30 p.m.

C. 1:00 p.m.

D. 1:30 p.m.

144. Figure ABCD is a rectangle. Angle A is what kind of angle?



A. Acute

B. Right

C. Obtuse

D. Complementary

CONTINUE TO THE NEXT PAGE

145. The measure of angle B is

A. 20^{o}

B. 30^{o}

C. 40^{o}

D. 160^{o}

146. Ruth has savings of $17.25. She wants to buy the following things:

skirt	$9.00
belt	$3.00
book	$2.50
records	$4.98

How much more money does she need before she can buy all of these items? (Do not include sales tax in your answer.)

A. $1.73

B. $2.03

C. $2.13

D. $2.23

147. Mr. Johnson wants to buy carpeting for his living room. The room is square and has a perimeter of 56 feet. What is the area of the room in square feet?

A. 144 square feet

B. 169 square feet

C. 182 square feet

D. 196 square feet

148. Add: $\frac{1}{2} + \frac{1}{3}$

A. $\frac{1}{5}$

B. $\frac{2}{5}$

C. $\frac{2}{6}$

D. $\frac{5}{6}$

149. Sue charges 75 cents per hour to babysit. Last week she babysat three hours on Tuesday, two hours on Thursday, and four hours on Saturday. How much did Sue earn last week?

A. $6.50

B. $6.75

C. $7.50

D. $8.25

CONTINUE TO THE NEXT PAGE

150. Which one of the following has a shape MOST like an orange?

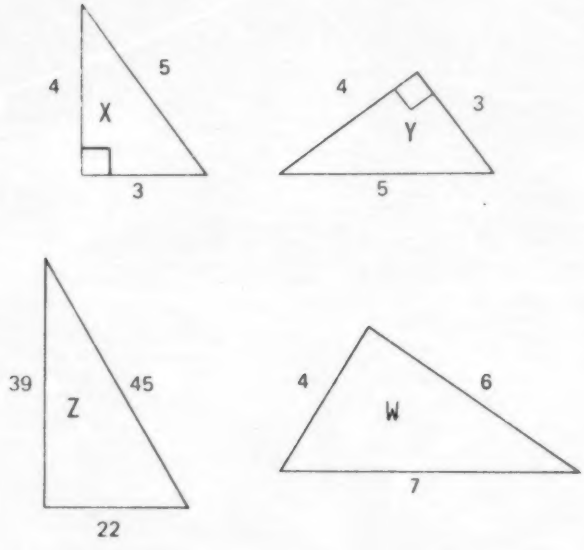
A. Cone

B. Cube

C. Cylinder

D. Sphere

151. Which of the triangles below is/are congruent to triangle X?



A. Only Y

B. Only Y and Z

C. Only Z

D. Only W

E. Only Z and W

152. Meteorologists estimate that the amount of water in nine inches of snowfall is the same as one inch of rainfall. A certain Artic Island has an annual snowfall of 1,602 inches. Its annual snowfall is the same as an annual rainfall of how many inches?

A. 14,418 inches

B. 1,602 inches

C. 178 inches

D. 160.2 inches

153. $1\ \frac{4}{5}$ is equal to

A. $\frac{14}{5}$

B. $\frac{9}{5}$

C. $\frac{6}{5}$

D. $\frac{5}{9}$

154. $-2 \times 12 =$

A. 24

B. 14

C. 6

D -24

CONTINUE TO THE NEXT PAGE

155. The length of a box was measured and found to be 9 centimeters to the nearest centimeter. Which of these could have been the length of the box measured more accurately?

A. 10 cm

B. 9.9 cm

C. 9.62 cm

D. 9.6 cm

E. 8.6 cm

156. There are 13 boys and 15 girls in a group. What fractional part of the group is boys?

A. $\frac{13}{28}$

B. $\frac{15}{28}$

C. $\frac{13}{15}$

D. $1\frac{2}{13}$

157. Multiply: $4 \times 1\frac{5}{6}$

A. $4\frac{5}{6}$

B. $5\frac{5}{6}$

C. $7\frac{1}{3}$

D. $\frac{11}{24}$

158. A 15-centimeter piece is cut from a stick one meter long. What is the length of the remaining piece?

A. 85 cm

B. 115 cm

C. 985 cm

D. 1015 cm

E. 9985 cm

159. 45% of 180 is

A. 45

B. 81

C. 90

D. 180

CONTINUE TO THE NEXT PAGE

160. Mr. Simmons put a wire fence all the way around his rectangular garden. The garden is nine feet long and five feet wide. How many feet of fencing did he use?

A. 20 feet

B. 28 feet

C. 14 feet

D. 45 feet

161 If x is replaced by 3, then the value of $x^2 - 1$ is

A. 2

B. 5

C. 8

D. 11

162. The measure of the smaller angle formed by the two hands of a clock at four o'clock is

A. 45 degrees.

B. 60 degrees.

C. 80 degrees.

D. 120 degrees.

E. 150 degrees.

163. Which of the following is NOT correct?

A. $\frac{65}{100} = 0.65$

B. $\frac{2}{4} = 0.5$

C. $\frac{1}{10} = 0.1$

D. $\frac{70}{100} = 0.07$

164. Divide: $0.4\overline{)24.56}$

A. 0.614

B. 6.14

C. 61.4

D. 614

165. 80 is what percent of 40?

A. 20%

B. 32%

C. 50%

D. 200%

CONTINUE TO THE NEXT PAGE

166. Subtract:
$$\begin{array}{r} 3\frac{1}{5} \\ -1\frac{4}{5} \\ \hline \end{array}$$

A. $1\frac{7}{5}$

B. $2\frac{3}{5}$

C. $1\frac{2}{5}$

D. $2\frac{2}{5}$

167. Divide: $3\frac{1}{2} \div 2 =$

A. $1\frac{1}{2}$

B. $1\frac{3}{4}$

C. $2\frac{1}{4}$

D. 3

168. Last summer Todd earned $205, Charlotte earned $562, and Dale earned $400. The average of their summer incomes was

A. $1167

B. $583.50

C. $400

D. $389

169. Which of the following represents the expression, "the sum of a number and 3 times that number is less than 30"?

A. $x + x < 30$

B. $3x - x = 30$

C. $x + 3x < 30$

D. $x + 3x > 30$

170. Divide: $16.4 \div 0.04 =$

A. 165

B. 371.42

C. 410

D. 450

171. 45% of what number is 90.

A. 0.20

B. 40.50

C. 50

D. 200

172. Solve:

$3x - 3 = 12$

$x =$

A. 3

B. 5

C. 9

D. 15

CONTINUE TO THE NEXT PAGE

173. If John drives at an average speed of 50 miles per hour, how many hours will it take to drive 275 miles?

A. 6 hours

B. $6\frac{1}{2}$ hours

C. 5 hours

D. $5\frac{1}{2}$ hours

174. A discount of 15% was given during a sale. What is the discount on goods valued at $280?

A. $ 15

B. $ 28

C. $ 42

D. $238

E. $265

175. A map of a state is to be drawn so that one-fourth inch represents 5 miles. If the real distance between two points in the state is 20 miles, how many inches apart should these two points be on the map?

A. $\frac{1}{2}$ inch

B. $\frac{3}{4}$ inch

C. 1 inch

D. $1\frac{1}{4}$ inch

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